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NOTES ON THE LARVA OF *CARGIDA PYRRHA* (NOTODONTIDAE)

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ABSTRACT. The ultimate instar larva of *Cargida pyrrha* (Druce) (Notodontidae) is described. Illustrations of its mandible and hypopharyngeal complex are included. The host plant of *C. pyrrha* is *Condalia lycioides* (A. Gray) Weberb.; an earlier report of *Lycium* may be in error.

Comstock (1959) described the egg and several larval instars of *Cargida pyrrha* (Druce), including what he called ". . . the third or fourth instar . . . ." (see his fig. 2). He succeeded in obtaining a subsequent larval instar, which he noted did not appreciably change in pattern or color from the preceding instar, but it is not certain that he was referring to the ultimate instar. His larvae were reared from eggs that he found in Madera Canyon, Santa Rita Mountains, Arizona, on twigs of *Lycium* (Solanaceae), a questionable host identification. The eggs resembled those laid by captive *Cargida pyrrha* which he had observed earlier, and on that basis he identified the eggs and larvae subsequently described. However, no adults were reared to substantiate his judgement, and the identification cannot be definitely confirmed because of the apparent lack of preserved specimens. According to Donahue (pers. comm.), Comstock saved very few larval specimens during his work and did not give any larvae of *C. pyrrha* to the Los Angeles County Museum of Natural History, the main depository for his material. Based on the similarity of his figured "intermediate" instar from Madera Canyon to the mature larvae of *C. pyrrha* that the late R. G. Beard and I collected in 1967 (see below), it is assumed that his determination was correct. The purpose of this article is to comment on the host plant association of *C. pyrrha* and to describe the ultimate instar as a complement to Comstock's earlier information on this species.

Numerous mature larvae of *Cargida pyrrha* (Fig. 1) were seen defoliating white crucillo, *Condalia lycioides* (A. Gray) Weberb. (Rhamnaceae), on 31 July and 1 August 1967 at 4200 ft in Guadalupe Canyon (Cochise County) in the extreme southeastern corner of Arizona. Actively feeding larvae were collected—several per bush at sunset on both evenings. The range of daily feeding activity is unknown. Within a few days they finished their larval feeding, and from 17 associated moths which emerged in 1968, J. G. Franclemont determined their identity.

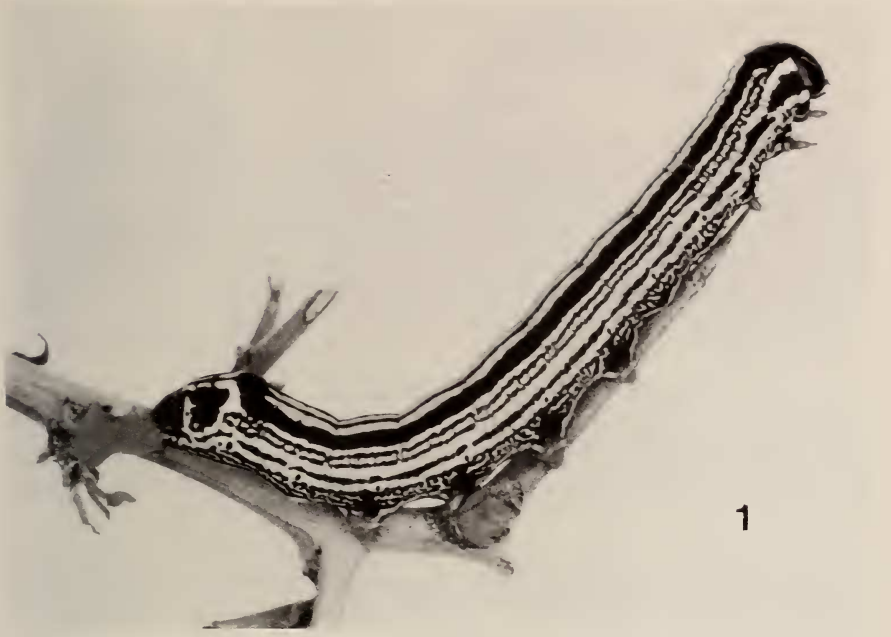

FIG. 1. *Cargida pyrrha*, mature larva, Guadalupe Canyon, Cochise County, Arizona (photo by J. G. Franclemont).

Comstock's record of *Lycium* needs to be verified, because he may have misidentified the host. McFarland (pers. comm.) wrote that the plant illustrated by Comstock looks much like the figure of *Condalia lycioides* in Benson & Darrow (1954, fig. 60A) [*Ziziphus obtusifolia* (Hooker) A. Gray var. *canescens* (A. Gray) M. C. Johnston in Benson & Darrow (1981)] and like the *C. lycioides* growing in his own garden, partly because its leaves are not in fascicles. The leaves of *Lycium* are mostly fasciculate (Kearney & Peebles, 1960). McFarland added that the first time he saw *Condalia lycioides* he was sure that he was looking at a *Lycium*.

Cargida pyrrha (Druce)

General (Fig. 1): Total length 30–38 mm. Chaetotaxy basically noctuoid with extra setae only on lateral aspects of Ab3–6 prolegs. Head: smooth, width 3.3–3.8 mm. Body: integument smooth, velvety in appearance; dorsum of Ab8 slightly humped. All setae simple. Prolegs present on Ab3–6, 10; pairs on Ab3–6 subequal, Ab10's slightly reduced; crochets in uniordinal, homoideous mesoseries. Midventral prothoracic glandular opening present.

Hypopharyngeal complex (Fig. 2): Spinneret tapers distad, about twice length of Lps-

FIGS. 2 & 3. *Cargida pyrrha:* **2,** hypopharyngeal complex, left lateral view (Lp-1 = seta on first segment of labial palpus, Lp-2 = seta on second segment of labial palpus, Lps-1 = first segment of labial palpus, Lps-2 = second segment of labial palpus, S = stipular seta, Sp = spinneret); **3,** left mandible, oral view (leader lines mark positions of the five outer teeth). Scale lines = 0.5 mm. Descriptive terminology follows Godfrey (1972).

1, surpasses tip of Lp-2, dorsal margin of tip U-shaped in transverse cross section, distal lip entire. Stipular seta about half length of Lps-1, twice length of Lp-1 and also of Lps-2, subequal to Lp-2. Distal region separated from proximal region by shallow medial transverse cleft; spines absent proximate to spinneret, becoming numerous proximad. Proximolateral and proximomedial regions uniformly covered by short, thin spines.

Mandible (Fig. 3): Outer teeth low, obtusely triangular, five teeth discernible (appear to be worn in available specimens); three large inner teeth present, flattened distally, adjoined by sinuate bridge. Two outer setae present (not visible in oral view of Fig. 3), insertions widely separated from each other.

Coloration: Head black. Body ground color black; dorsal area black with two yellow stripes continuous to Ab8; subdorsal lines white; dorsal and ventral stripes of subdorsal area white and yellow respectively, both with black dorsal borders; lateral area yellow with black line above spiracles; ventral area mottled black and white with yellow line at level of prolegs and black midventral line; black patches above prolegs. Thoracic legs and prolegs orange. Spiracles black.

Material examined: Six mature larvae: Guadalupe Canyon, 4200 ft, Cochise County, Arizona; 31 July & 1 August 1967; feeding on *Condalia lycioides* (A. Gray) Weberb.; G. L. Godfrey & R. G. Beard, collectors. Hypopharyngeal complex on GLG Slide 2500, John G. Franclemont Collection.

The character of the three, large, adjoined inner teeth on the mandible of *Cargida pyrrha* readily separates this species from other described notodontid larvae in the USA. Nothing comparable was found in the larvae of 26 other genera of North American notodontids that I recently examined. Note also that Gardner (1943) did not mention similar mandibular structuring in any of the Asiatic notodontid larvae, representing 14 genera, that he described. Perhaps this character will prove to be of some phylogenetic importance. However, notodontid larval mouthparts presently are too meagerly documented to evaluate

their phylogenetic implications, let alone draw conclusions from the mandible of a single species.

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